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TRANSLATIONS ON ENVIRONMENTAL QUALITY  
No. 181

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FIJI

## CARP COULD HELP FIJI CLEAR WEED PROBLEM

Auckland NEW ZEALAND HERALD in English 7 Sep 78 p 2

[Text]

### Chinese grass carp could be the answer to some serious freshwater weed problems in Fiji.

That is the belief of the scientist in charge of fisheries research in Rotorua, Dr G. R. Fish.

One thousand grass carp fingerlings from research ponds at Rotorua will leave tomorrow as a gift to the Fijian Government.

Grass-eating carp were first brought to New Zealand in 1971 for experiments into weed control, Dr Fish said yesterday.

He believed they could well be an answer to New Zealand freshwater weed problems, and research at Ministry of Agriculture and Fisheries ponds at Rotorua had shown some evidence for this.

### Problems

But fears by anglers of interaction between carp and trout had, he said, prevented release of the carp into any major river or lake so far.

But Fiji, which had also been experimenting with the fish, could well proceed with grass carp for weed control. Fiji had serious weed problems already which could worsen when it proceeded with plans for new reservoirs, Dr Fish said.

In New Zealand, plans were made a few years ago to release carp into Lake Rotokawa, a small lake near the Rotorua airport, but were abandoned due to pressure from angling interests and from the Internal Affairs Department.

### US Fears

Dr Fish said he hoped attitudes to the carp could change in the future to allow wider research on their possibilities in New Zealand waters.

Unlike the European carp they did not make holes in lake banks and they were too big to be eaten by trout.

But Internal Affairs representatives have said that the carp is banned in several American states because of fears of its effect on waterways and marine life.

The conservator of wildlife in Rotorua, Mr P. J. Burstall, had described the carp as too great a potential danger to the Rotorua-Taupo fisheries to risk introducing them in this area.

Carp are reported to have "colonised" whole river systems in the Soviet Union, and research has shown they can be a host to parasites which could spread to other types of fish.

It was also considered possible that the carp were carnivorous in a juvenile stage, only becoming herbivorous later.

CSO: 5000

ENVIRONMENTAL IMPACT REPORTS REQUIRED FOR SOME PROJECTS

Kuala Lumpur BUSINESS TIMES in English 19 Jul 78 p 1

[Article by A. Kadir Jasin]

[Excerpts]

A NEW element will be introduced in the Fourth Malaysia Plan: the impact of development on the environment.

Procedures are to be instituted for Environmental Impact Assessment (EIA) as part of a preventive approach to pollution problems so that development does not have unintended side effects.

A background paper on existing national policies and environmental programmes presented at the second day of the System Engineering Seminar on Water Quality in Kuala Lumpur yesterday discloses that an EIA report would be required for a limited number of projects in the Fourth Plan.

A chapter on environmental impact assessment will be included in the Plan, and full implementation of the procedures is expected to be made in the Fifth Development Plan.

Full implementation of the EIA procedures, says the paper will eliminate most of the drawbacks and adverse long-term effects of development.

"It will ensure that all future development

projects will be environmentally sound and prevent any further deterioration of our fabulous natural heritage, unspoilt land, forest and rivers," adds the paper.

The EIA can be characterised as a 'look before you leap' approach. The environmental impact assessment procedures will include the evaluation of the anticipated impact of project alternatives, comparison of short-term uses of resources as against long-term productivity, and the consideration of all irreversible actions, including any irretrievable commitment of resources.

The EIA will attempt to avoid costly future problems rather than resorting to expensive remedial measures which do not guarantee full success.

The paper notes that it is not easy to create an environmental conscience in agencies and organisations with histories of disregard for such matters.

On the proposed effluent discharge standard for rubber, the paper says that it will be implemented through a three-generation set of limits against four in the case of palm oil.

In the first generation or stage, SMR and conventional factories have to reduce their BOD (biological oxygen demand) limit to 500 parts per million (ppm); 300 ppm in the second stage and 200 ppm in the third stage.

No dates have yet been set for the enforcement of these limits although the regulations will be gazetted in the near future. Discharge standards for sewage and industrial effluents are also being gazetted.



## GOVERNMENT SEMINAR ON WATER POLLUTION

Kuala Lumpur NEW STRAITS TIMES in English 18 Jul 78 p 9

[Text]

**KUALA LUMPUR, Mon.** — A warning that water pollution will pose serious consequences in certain areas of the country was given by Science, Technology and Environment Minister Tan Sri Ong Kee Hui today.

The Minister said several major rivers were found to be grossly polluted, according to a water quality study by the Water Environment Division of his Ministry.

Among the river are Sungai Kelang, Sungai Selangor, Sungai Linggi, Sungai Langkat, Sungai Melaka, Sungai Muar, Sungai Segamat, Sungai Johore, Sungai Muda,

Sungai Trengganu, Sungai Kelantan and Sungai Perak.

Tan Sri Ong was speaking here at the opening of a 12-day seminar and workshop on Systems Engineering on Water Quality organised by the Science, Technology and Environment Ministry and the Mitre Corporation of the United States.

More than 50 officials from Government agencies, and representatives from universities, research organisations and private firms are attending the seminar-workshop.

"The major sources of organic pollution have been attributed to sewage, oil palm mill and rubber factory effluents," Tan Sri Ong said.

### Problems

Pollution from these sources had been quantified and together discharge a B.O.D. (Biological Oxygen Demand) of two million pounds per day, of which oil palm and rubber factories account for one million pounds, he added.

"Among the remaining agro-based industries, water pollution problems of a localised nature are caused by the tapioca, pineapple and sugar industries.

"In addition, water pollution problems are also caused by the discharge of other industrial effluents, particularly in industrial centres like Kuala Lumpur, Petaling Jaya and Penang," he said.

Among the major industrial sources of pollution named by him were tanneries, textile mills, electronic factories, electroplating industries and sulphuric acid plants.

"Significant levels of toxic metals, such as mercury, lead, chromium and cadmium have been encountered in the Juru and Kelang River basins," he said.

Tan Sri Ong said another major water pollution problem was siltation, mainly as a result of the opening of land and mining, which is expected to increase in the future.

He said the Environment Division had taken steps to curb the current incidence of water pollution.

He said regulations to control oil palm effluence came into force on July 1 this year and those for rubber factory effluence, industrial effluence and sewage would be gazetted shortly.

He added that a report on siltation would be submitted to the National Land Council for approval and adoption by the States.

Tan Sri Ong also said the Environment Division was also monitoring water quality of several Malaysian rivers.

CSO: 5000

AEROSOL INDUSTRY PHASING OUT FLUOROCARBONS

Wellington THE EVENING POST in English 31 Aug 78 p 6

[Text]

New Zealand's aerosol industry, following world-wide trends to protect the atmosphere's ozone layer, has made major moves to use hydrocarbon propellants rather than the harmful fluorocarbon propellants.

On Monday a visiting American scientist (Professor F Sherwood Rowland) warned that New Zealand takes the risk of contributing to an increase in skin cancer unless it bans the use of fluorocarbons in aerosol containers.

However, a recent survey carried out by the Department of Trade and Industry indicates New Zealand — in the past two or three years — has made major moves to using hydrocarbon propellants.

"Aerosol cans are classified

into two uses — household and personal," a member of the aerosol subcommittee of the New Zealand Cosmetic and Toiletries Association (Mr Peter Isherwood) said today.

"The household uses are products such as polishes, cleaners, fly sprays and paints, while the personal use class covers cosmetics and toiletries.

"And the survey shows a very substantial drop in the use of fluorocarbons for household products — only about one third of the cans used this year (compared with 1977) had fluorocarbon in them.

"Next year we expect that figure to be cut in half, and within a year or two fluorocarbon propellants should —

with one or two exceptions be phased out altogether.

"However, in personal use products there is a bigger problem.

"Here there has been a 20 percent reduction on the 1977 figures, and in 1979 we expect a further 20 percent reduction on the 1978 figure," he said.

"Manufacturers are trying to change to the hydrocarbons as quickly as they can. And are aiming for the lowest possible level they can.

"But it must be remembered that personal use aerosol products are being used near the eyes and on the face in many cases — and the hydrocarbon can create problems.

"Also the complexity of re-

formulation of the products to suit hydrocarbon propellants is difficult."

Fluorocarbons have been banned in many countries — it is understood its use in aerosol cans will be banned in the United States in October — because of their damaging effects on the world's ozone layer.

This is the part of the upper atmosphere which diffuses and filters harmful ultra-violet rays from the sun.

In New Zealand, the hydrocarbon butane propellant is produced at the Natural Gas Corporation's Kapuni plant from natural gas, with butane being chosen as it has the right liquid vapour characteristics.

CSO: 5000

NUCLEAR FALL-OUT LEVELS LOWEST SINCE 1960

Christchurch THE PRESS in English 17 Aug 78 p 3

[Text]

Nuclear fall-out levels measured in New Zealand last year were the lowest since measurements began in 1960, says the National Radiation Laboratory.

Deposits of strontium 90 at nine New Zealand recording stations averaged less than 0.1 millicuries per square kilometre, according to an annual report on environmental radioactivity released yesterday.

This was one thirty-sixth of the deposits recorded in 1964, said the report by the laboratory's director (Dr H. R. Atkinson). The 1964 deposits resulted from large United States and Soviet atmospheric tests in 1961-62.

Concentrations of strontium 90 and caesium 137 in New Zealand milk reflected the changes in fall-out deposit.

He said that five Pacific island stations had been monitoring levels continuously in the area since French underground nuclear testing began in 1975.

"Fresh fission products, from possible venting during underground tests, have been detected since this programme started.

"The levels recorded during 1977 were very small fractions of the reference levels and do not constitute a public health hazard.

"The radiation dose to the general population resulting from the long-term average levels is small," Dr Atkinson said.

CSO: 5000

## NATION TAKES STEPS TO CONTROL EROSION

Montevideo EL PAIS in Spanish 11 Aug 78 Supplement p 4

[Text] Erosion is a natural phenomenon caused by rain, wind and water currents in general. The phenomenon occurs normally in nature, molding the landscape and acting in balance with the rest of the ecosystem.

Once man begins to work the soil, the vegetation and woodlands, etcetera, change that equilibrium and erosion can become a serious problem that endangers fertile lands, the regeneration of forests, the quality of water and of supplies of pure water.

The phenomenon of erosion received special attention in the developed countries beginning in the decade of the 30's, due principally to the deterioration that became particularly evident in areas that had been cleared of forests for agricultural use.

### Erosive Process

The process of erosion becomes evident when the dynamic equilibrium in which the soil exists is destroyed in some way, thus causing an acceleration of this naturally slow process.

The equilibrium is destroyed whenever the soil is stripped of its natural covering of vegetation, thus permitting the principal erosive agent--rain--to work upon the bare surface. The destruction of the ground cover is caused by various things: over-grazing, deforestation, fire, and, principally, by agriculture.

Rain has been noted as the principal erosive agent in our country due to the characteristics of our climate, in which rainfall is concentrated during relatively short periods of time, in addition to extremely heavy rains (millimeters per hour).

As to the causes of destruction of the ground cover, we must

point out agriculture, first of all. When we say agriculture favors the process of erosion, we note that we are referring to traditional methods of agriculture, without the use of adequate measures of conservation and soil management.

In this process, two important aspects should be pointed out:

- 1) Loss of nutrients and minerals when part of the topsoil is washed away.
- b) Deterioration of physical properties or physical degradation.

These two points are closely related, generally occurring simultaneously and interacting with each other. Thus the process begins to accelerate itself. This means that once the deterioration has begun, the land becomes continually more susceptible to erosion.

In outline form, one might say that once a soil begins to be cultivated, it is more exposed to the effect of this washing away because the excess rainwater does not penetrate the soil. Then the richest arable layer is washed away to lower land or deposited in drainage ditches where it accumulates or is carried further, deteriorating the water supply. This process happens year after year, and at first it is hardly visible, since its traces are easily covered by cultivation of the fields. But once it becomes pronounced and little gullies begin to appear that grow larger year after year, it can no longer be stopped without the use of special practices that are generally costly. And most important, the volume of soil that is lost can no longer be returned to its original place.

As this process continues to occur, its effects are seen in lower yields, poorer quality pastures, greater risk of drought, more restricted and costlier periods of cultivation (because the land area of the farms is cut away by the gullies), poorer response to the use of fertilizers, and so on. Thus, a soil that is affected by a moderate degree of erosion produces a smaller crop yield per hectare, which in turn makes it more difficult to improve its structure, moisture retention, permeability, and so forth.

In our climatic conditions, soils are more or less susceptible to erosion depending principally on: topography, soil depth, texture, structure, permeability, natural fertility, characteristics of the subsoil and type of vegetation. These characteristics are closely related to each other.

Under cultivation, as previously mentioned, the vegetation has been destroyed, therefore soil management and crop rotation? become fundamentally important.

Crops that offer the soil little protection, such as those where the surface of the ground is just scratched, are those that generally favor erosion when not accompanied by adequate measures to offset it.

#### Estimates of Erosion in Uruguay

The process of erosion in our country has reached proportions that lead us to think seriously about adopting measures for the reclamation of seriously eroded areas, and of adequate measures of conservation in those zones where the phenomenon is controllable and where its effect would manifest itself, in the long run, in production.

We should think, basically, about the economic effect of the loss or deterioration of our principal natural resource, on which our production is based.

In the past, when soils were depleted or eroded, it was easy to move to new highly productive lands. But today, the majority of our best soils are already being farmed and are affected to some degree by erosion or seriously threatened by inadequate management.

The incorporation of new soils into agriculture generally is being done at the expense of marginal soils that detract from the livestock and which in general are more susceptible to erosion.

Estimates by the Soil and Fertilizer Administration about the different degrees of erosion indicate that approximately 30 percent of the nation's land is affected by a certain degree of erosion, as shown in the following chart:

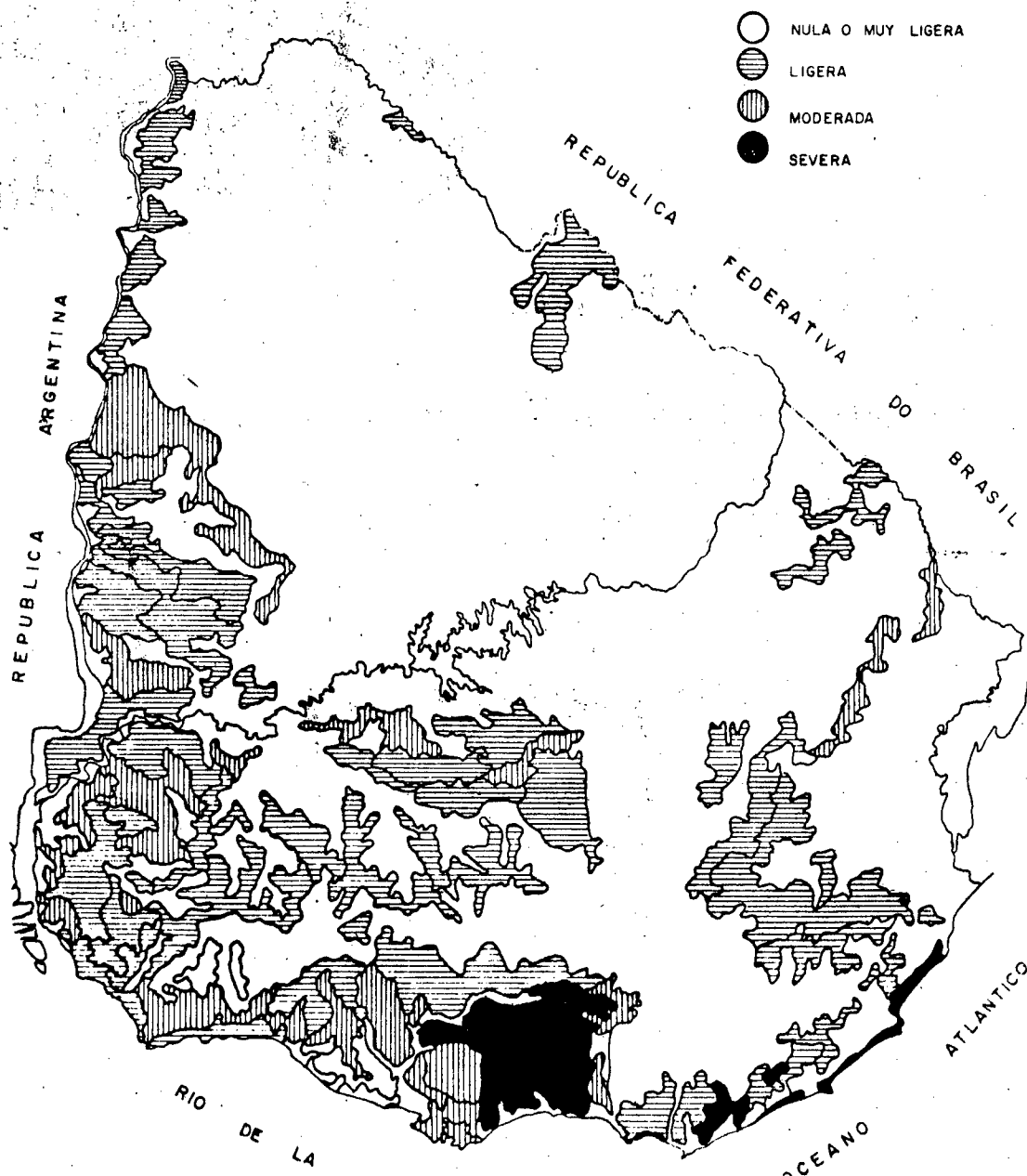
Little or no erosion, 69.9 percent  
Light erosion, 21.2 percent  
Moderate erosion, 6.8 percent  
Severe erosion, 2.0 percent

If we compare the eroded area with the area that is suitable for agriculture in the country, this figure becomes very important.

The most severely eroded areas are located in the departments of Canelones, San Jose and part of Maldonado. This is the region that has supported the most intensive and prolonged period of our agricultural history.

In general terms, the rest of the areas affected are located in our principal agricultural region, the western sector along the Uruguay River, where our most fertile soils are found and where approximately 80 percent of the nation's grain is produced.

With respect to the south-central part of the country, agricultural use is more intensive but locally concentrated, added to which is the greater susceptibility to erosion of this area, resulting in light and moderate degrees of erosion.



Key:



Little or no erosion  
Light erosion



Moderate erosion  
Severe erosion



In the next article we will outline practical measures of conservation and soil management that permit intensive agriculture but prevent it from deteriorating the soil resources and consequently, national agricultural production.

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URUGUAY

BRIEFS

WATER SERVICE IMPROVEMENT--Mercedes-- Intensive work is continuing to complete important projects that will permit an improvement in the supplying of pure drinking water in this city. In accordance with the program of projects of the OSE [State Board of Sanitation], a million-liter auxiliary distribution tank is being built on Garibaldi Street near the Municipal Football Stadium--one of the highest points in Mercedes. This tank will permit a regular supply to areas that suffer water shortages in the summer. The OSE plan also envisions a considerable expansion of the water distribution network in various sections of Mercedes. In addition, the water mains are being [word illegible] in order to improve the pure water supply service. [Text] [Montevideo LA MANANA in Spanish 2 Aug 78 p 87 8631

SECOND STAGE FORESTATION--Punta del Diablo-- A resolution promoted by the Mayor's Office, with the full cooperation of superiors and officers of Infantry Battalion No 12, with headquarters in the city of Rocha, was made on 31 August to initiate the second stage of forestation in this locality and surrounding areas. [Text] [Montevideo EL DIA in Spanish 12 Aug 78 p 157 8631

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AFFORESTATION PROGRAM UNDER WAY

Kaduna NEW NIGERIAN in English 1 Sep 78 p 2

[Article by Nura Suleiman Ishak]

[Text]

**MORE than 100,000 seedlings are to be planted in all the three districts of Ikara Local Government area during the current 1978/79 tree planting campaign. The districts include Ikara, Makarfi and Kubau.**

**Of this number, 36,000 seedlings have already been planted at Anchau Takalafia in Kubau District of Ikara Local Government area, in Kaduna State.**

Speaking at the launching of the campaign, the Sole Administrator of the Ikara Local Government, Alhaji Ahmadu Bakori, further disclosed that about 25,850 seedlings would soon be distributed to farmers, and 4,100 would be given to all the primary schools, while a newly established village in the area was to receive 300 and young farmers' clubs throughout the local government are 1,500 seedlings.

Thirty-two thousand seedlings were to be sold, however, to interested farmers at subsidised prices, he said.

Alhaji Ahmadu Bakori further reiterated the importance of tree planting in our economy and implored all those who received the seedlings to plant them according to the advice given by bush inspectors in their areas.

He, however, commended the people of the area for the interest they had shown in the campaign and called for more co-operation.

The launching ceremony was attended by many distinguished people including the District Head of Kubau, Alhaji Suleiman, Katukan Zazzau.

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WATER SHORTAGE IN CAPITAL OF NIGER STATE CALLED ACUTE

Kaduna NEW NIGERIAN in English 7 Sep 78 p 2

[Article by Abdul Salami Zubairu, Minna]

[Text]

AN acute shortage of water has hit Minna, capital of Niger State, and its environs, and for the past three weeks, people have had to travel four to five kilometres to fetch drinking water.

All the water taps in Minna, and Bosso quarters in particular, have either been locked or gone dry for almost one month now.

Efforts to get the cause of the shortage proved abortive, but a competent source close to the Water Board told me that the water dearth in Minna and Bosso was due to the construction works on roads now in progress throughout the state capital, and which had caused a lot of damage to the water pipes.

As a result of the shortage, local well-diggers are now in full business in these areas, while tanker drivers of the state Water Board who travelled to the nearest towns to fetch water meant for distribution to the inhabitants mostly affected, seized the opportunity of the situation to exploit the public.

Investigation carried out by the New Nigerian revealed that these drivers now sell a drum of water at between three Naira to five

Naira to the people in these areas, while those who cannot afford this amount have to travel out in search of well, stream or river water both for drinking and domestic use.

The investigation also revealed that the areas mostly affected include Minna, Bosso, Keteren Gwari and Kuta, and some businessmen in these areas who could afford to buy tanker vehicles did so.

It was discovered that the inhabitants of the Types 'A' and 'B' quarters including the low-cost housing estates where top government officials and some government workers are putting up are not experiencing this shortage.

I also discovered that a village about four kilometres away from Minna whose inhabitants always had water for two hours in a week, in the taps, complained that the water which came out of the taps was not good enough for human consumption since it was always full of mud, insects, or worms.

The source agreed that the water being supplied to this village could be harmful to the people since it was not treated, adding that, the water "is being supplied direct from Bosso Dam untreated."

CONTRACT SIGNED FOR AERIAL SURVEY OF IRRIGATION SITES

Kaduna NEW NIGERIAN in English 7 Sep 78 p 7

[Article by Edet Charles, Calabar]

[Text]

AN aerial survey of the proposed sites of a number of flood projects to be established in the country has been commissioned.

The irrigation projects which are for agricultural purposes in the Cross River Basin will be sited on Okete River in Benue State, Nyaba River, Anambra State and Unwana in Imo State.

Contract for the aerial survey of the project sites has been signed in Calabar, between the Chairman of the Cross River Basin Development Authority, Mr. O. E. Ikpi and Mr. George Olusegun Osifeso for an indigenous firm of aerial surveyors, Messrs Mapcotec Nigeria Limited.

The contract which is valued at 843,000 Naira, is for the production of aerial photographs and maps of the project sites. It also covers Qua Iboe River in Cross River State.

The chairman of the Basin

Authority announced at the signing ceremony that the contract was expected to be completed within seven months.

He also announced other approved projects to be executed by the authority during the current financial year.

These include, a poultry hatchery and a livestock feed mill to be established in the authority's headquarters complex in Calabar.

Another establishment of poultry farms in Otukpo, Benue State, Enugu, Anambra State, Umuahia, Imo State, and Etinan in Cross River State, as well as the setting up of area officers in these places.

Last year, the authority had commissioned feasibility studies of the first set of projects it executed.

The projects consisted of 26 hydrological stations which were installed as well as two medium projects and five minor schemes involving flood protection and irrigation schemes in various parts of the Cross River Basin.

PROTESTS OVER DISPLACEMENT DUE TO DAM CONSTRUCTION, BAD ROADS

Sokoto Riot Over Compensation Claims

Kaduna NEW NIGERIAN in English 7 Sep 78 p 32

[Article by Mu'azu Alhaji]

[Text]

**MORE than 300 villagers displaced by the 200 million Naira Bakolori Dam project in Sokoto State, have staged a violent demonstration in which one person was killed and 17 others injured.**

The villagers were protesting against what they called non-payment of compensation for their farmlands taken over by the Sokoto Rima Basin Development Authority.

The demonstrators, who were armed with bows and arrows, cutlasses and sticks, stormed the government offices in the area with a view to finding some of the officials responsible for effecting the payment of compensation, but they were overpowered by the police.

The police in Talata Mafara had to ask for reinforcement from Sokoto because of the danger of their being overwhelmed by the angry villagers.

Soon after the arrival of the reinforcement, the villagers began to attack them with stones and arrows.

So far investigations now going on in the area revealed that some influential people with vested interest in the compensation instigated the villagers to attack the police.

When contacted, the Military Administrator of Sokoto State, Col. Mohammed Gado Nasko, told me that he had visited the scene of the incident but pointed out that investigations were still going on to track down the "selfish people who pushed the villagers to attack the law enforcement agencies".

The Deputy Commissioner of Police, Alhaji A. Malumfashi, told me on the telephone that they had set up a high-powered inquiry into the incident but that no preliminary report on the incident had been received.

Meanwhile, the injured among the villagers as well as some of the injured policemen are on admission at the Talata Mafara General Hospital. It is also believed that the police had made some arrests.

## Tax Revolt Threatened in Oyo

Kaduna NEW NIGERIAN in English 12 Sep 78 p 11

[Article by Lekan Yusuf]

[Text] About 700,000 people unwilling to pay their tax and other levies may have their way in the end...because their councillors are afraid to use force.

The people are in the Ila Local Government Council area Oyo State.

The council's chairman, Prince Isaac Adebayo, said yesterday that the people were un-co-operative because of bad roads in Ila-Orangun and Ikirun. And the councillors fear that a tax raid could incite a revolt.

Prince Adebayo said the council had been unable to raise revenue from tax and tenement rate because the people were un-co-operative.

He said the council had built some roads in the rural areas. The people were also benefitting from new maternity centres, dispensaries, water distribution tankers and standing water containers, he added.

Prince Adebayo said markets had also been built in many areas.

But he said lack of money and personnel held back the other projects.

The state government had not provided all the grants for 1977/78 year and had given nothing for 1978/79, Prince Adebayo concluded.

CSO: 5000

## LEGISLATION AND PROTECTING THE ENVIRONMENT

Moscow PRAVDA in Russian 22 Aug 78 p 3

[Article by G. Filimonov, chairman, Rostovskaya Oblast Court: "Protecting Nature"]

[Text] The Ordzhonikidzevskiy Rayon People's Court in the city of Taganrog tried A. Vorob'yev, a shift chief in the steam-generating shop at the Red Boilermaker Plant, on the criminal charge of inflicting damage on nature. He did not personally chop down trees, set off explosives to stun the fish, or kill wild game. This is what happened. One night, two mazut heater pipes burst, discharging oil into the sewer system and ultimately into the Sea of Azov. Over three tons of mazut were spilled before the accident was finally discovered. Thus it was the shift chief's failure to monitor the operation of the mechanism that resulted in substantial pollution of the sea. He was called to account and sentenced.

The passage of the new Fundamental Law has made nature conservation the constitutional duty of every citizen. Nature conservation laws have undergone important modifications in recent years. Basic legislation regarding land, minerals, water, and forests is in effect. Our own Rostovskaya Oblast, for example, has built numerous purification plants, sedimentation tanks, and water recycling systems. The current five-year plan allocates over 150 million rubles for the construction of water conservation facilities alone. Channel-clearing operations are slated for nine small rivers that drain into the Don. There is an ongoing effort to expand greenbelt protection of farm land and to increase the reproduction of fish. In a word, there is a purposeful, day-by-day effort to protect the environment and it is obviously paying off.

But let us ask ourselves if we are making sufficiently effective use of nature conservation laws. Alas, we will derive slight comfort from the answer. The enemies of nature against whom criminal proceedings are instituted are for the most part fish poachers. Sentences are also meted out for illegal hunting and logging. Enterprise and organization managers who do not concern themselves with the effective purification of sewage and who do not deem it necessary to take exhaustive precautionary measures in the handling of toxic chemicals are very rarely called to account.



The judiciary is frequently idle in this regard. This leniency stems from the notion that the people have done their best in the interests of production and something has gone awry. This is an incorrect position that causes a great deal of harm in actual fact.

Such connivance has been observed in the Kamenskiy Rayon. The civil affairs collegium of the oblast court -- held in itinerary session in the Kamenskiy Rayon -- recently examined a damage suit filed by fish conservation agencies against the Dawn of Communism Kolkhoz for the destruction of fish. The finding was that the kolkhoz's livestock facilities were situated too close to the river in violation of the sanitation ordinances. They lacked proper manure pits and drainage purifiers. Earth dams were erected on the river without the consent of the fish conservation agencies and without the knowledge of kolkhoz chairman A. Trudnikov. The water ceased to flow and as a result of this and other factors the fish died. The oblast court granted the damage claim in full. In its interlocutory orders, the court also called attention to other violations of nature conservation laws within the rayon. The results of the proceedings were publicized in the local press and on television.

Various branches of the national economy are developing at an ever accelerating pace and more and more new industrial and agricultural enterprises are being put into operation. In a number of cases, we are encountering undue strain on the ecological environment. We must accordingly re-appraise the part played by Soviet criminal law in resolving the nature conservation problem. There is hardly any justification for the present state of affairs in which the norms designed for the protection of the environment are scattered among the various chapters of the criminal code. Many of them, for example, are listed in the section on economic crimes. This suggests that the only objects subject to conservation are those that are used in production. The fact of the matter is, however, that all of nature's riches -- animals, plants, health resort areas -- need the protection of the law.

We believe that there is a need for a new legislative approach to nature conservation and that the first step in this direction should be to concentrate environmental protection norms in special chapters of the criminal codes of the union republics.

The Fundamentals of Legislation on Land, Water and Minerals and the Fundamentals of Legislation on Forests state that the violation of specified legal precepts may entail criminal liability. Such liability is a possibility and is not always invoked because the criminal codes are silent on this count. It would seem that the criminal codes should spell out in more specific terms the liability for various serious violations of the rules governing the operation of purification plants, the shipment, storage and use of chemical plant protection agents, biological stimulants, mineral fertilizers, and other preparations and for the malicious nonfulfillment of the orders issued by agencies that monitor bodies of water for purity.

These questions demand the unflagging attention of legal practitioners and scholars. Every avenue must be used to improve the protection of nature by legal means and the practical application of the latter must be analyzed in greater depth. Constitutional provisions for the protection of the environment must be implemented without fail.

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CSO: 5000

ENVIRONMENTAL PROTECTION IN YAROSLAVSKAYA OBLAST

Moscow KHOZYAYSTVO I PRAVO in Russian No 7, Jul 78 pp 7-14

[Article by V. Toropov, chairman of the executive committee of the Yaroslavskaya Oblast Council of People's Deputies: "For the Sake of Life and Health"]

[Text] Our country has always given and in the future will attach major significance to the problems of environmental protection and the proper utilization of natural wealth. This is attested to by the numerous decrees, natural conservation orders and instructions signed even as long ago as the first years of Soviet rule by V. I. Lenin, and also by subsequent laws and legislative acts from which we cannot but single out the decree of the USSR Supreme Soviet "On Measures for the Further Improvement of Natural Conservation and the Efficient Utilization of Natural Resources (1972)."

This document advances as one of the most important tasks the complex approach to protecting the human environment; strict adherence to legislation for the protection of the land, mineral resources, forests and water, the animal and plant worlds, and the atmosphere. The thought that pervades this decree is that scientific and technical progress in our country is aimed at the good of man, that it can and must contribute to the creation of more favorable life and health conditions, to the work and relaxation of the workers. And this is very important.

Article 18 of the Constitution of the Union of Soviet Socialist Republics states: "In the interests of the present and future generations the USSR is adopting the necessary measures for the protection and scientific substantiation, efficient utilization of the land and its mineral resources, flora and fauna, for the preservation of clean air and water, and for providing the regeneration of natural riches and the improvement of the human environment.

I will not delve deeply into the scientific and socio-political aspect of the given problem, but will attempt to discuss how natural conservation work, the complex approach to solving this important problem and how the participation of local councils of people's deputies and the broadest sections of

society have been organized and how this work is being carried out in our Order of Lenin Yaroslavskaya Oblast.

As is well known, on 13 March 1972 the Central Committee of the CPSU and the USSR Council of Ministers approved a joint decree "On Measures to Prevent Pollution of the River Basins of the Volga and Ural by Impure Sewage." This decree, among others, designated our oblast and our enterprises, and set up concrete tasks for further maintaining the intrinsic natural balance whose destruction is possible by the expansion of already operational and the establishment of new production in the chemical, petroleum refining, machine building, food and textile industries and by many other branches of the national economy.

The Yaroslavskaya Oblast is relatively small in area, encompassing only 36,400 square km. It has 1.5 million inhabitants. Of them 1.1 million live in 10 cities.

The oblast produces automobile and tractor engines, powerful cranes, lacquers, rubber articles, petrochemical products and many others. The list of enterprises and products produced attests to the need to pay great attention to environmental protection.

Continuous attention to this problem from the government instils in us assurances for tomorrow. The land and the beautiful Volga will remain for our descendants, and as beautiful and outstanding as they appear today, they will be even better in the future.

In recent years under the leadership of our oblast's party and soviet organs much work has been conducted on improving environmental protection and on the efficient utilization of natural resources.

For just water conservation projects, in 1971-1976 90 million rubles were spent and the planning goals for capital investments were completely realized on time. And so, the industrial enterprises listed in the decree of the CC CPSU and the USSR Council of Ministers, "On Measures to Prevent Pollution of the River Basins of the Volga and Ural by Impure Sewage," put their sewage treatment plants in operation in the established time. In all for this period, 121 water conservation projects with an overall mechanical purification capacity of 231,000 cubic meters daily and a biological purification capacity of 102,000 cubic meters daily were built.

The oblast now has 368 sewage treatment complexes providing 86 percent purification of all effluents. The capacity of the water conservation complexes rose by 1.7 times during the Ninth Five-Year Plan. And with the starting up of municipal sewage treatment plants in 1978 in Rybinsk, Lyubim, and a second phase in Yaroslavl' 98 percent of all sewage will be subjected to purification. By 1980 this problem will be fully resolved. The number of major enterprises using circulating water supply and recycling systems reached 70 percent. The oblast has facilities to receive sewage water from river ships.

Over the last five years 60 water supply lines were built and the capacities of existing water lines were expanded in Yaroslavl', Rybinsk, Tutayev and other cities. The overall extent of water supply line networks increased by 20 percent. As a result of this water provided by a centralized water supply system in cities rose from 80 to 91 percent and from 20 to 78 percent in advanced inhabited rural areas. Even the quality of water being consumed improved due to the installed purification systems.

As a result of the work done in the Yaroslavskaya Oblast the condition of water resources improved. Thus, the content of petroleum products in Volga water decreased five times, and the level of toxic substances is now significantly lower than the maximum permissible concentrations (PDK).

It is evident that all this did not take place by waving a magic wand. Success in this matter was provided by the purposeful and systematic work of local party and soviet organs enlisting the efforts and means of the enterprises, organizations and institutions situated on the oblast's territory and with the active participation of the public.

At various times based on thorough study and examination, the executive committee of the Yaroslavskaya Oblast council adopted a resolution on the protection of underground water, nature and the improved utilization of natural resources; on acknowledging various unique water resources situated in the oblast as being natural monuments; and on protecting atmospheric air and the external environment from pollution by toxic chemicals.

These resolutions laid the foundation for a complex approach to solving environmental protection problems. The joint decree of the Yaroslavskaya Oblast Committee of the CPSU and the oblast executive committee "On Protection of Water Resources" is the initial document.

Right off local municipal and rural councils of people's deputies were actively included in the work to carry out the programs noted. In their sessions they confirmed concrete plans and enlisted for their realization the enterprises, scientific institutions, standing deputies' commissions, people's control committees, public organizations--in a word, all those who in some measure were tied to the use and protection of natural riches.

And so, for example, the Rybinskiy and Tutayevskiy rayon councils of people's deputies exhibited meritorious initiative in the protection and utilization of rivers (in the Yaroslavskaya Oblast there are 2,200 rivers). By a decision of the Rybinskiy Rayon executive committee all small rivers were placed under the protection of the enterprises. Construction of stock breeding farms and complexes, petroleum bases, fertilizer and toxic chemical warehouses were forbidden. Besides this, plans call for building 14 dams with sluices and nine transit dams and for planting vegetation along the shores.

With due regard for the proposals of the organs of the state sanitary supervisory office, the fish conservation inspectorate, the oblast council of the

of the All-Russian Society for the Protection of Nature, various sections of the Kotorosl', Sot', Solonitsa, Yukhot' and Pakhma rivers were specified as points for mass worker recreational facilities, and listed as protected fish hatcheries for breeding and raising valuable varieties of fish.

With the aim of establishing optimal sanitary and hygienic conditions in recreational areas and for the regeneration of fish supplies in these areas the traffic of small limited-horsepower boats was curtailed.

To maintain the water level of the river 24 dams were built on them and construction of others continues.

The Ninth Five-Year Plan marked the occasion of a large movement for natural conservation and for a clean environment for Yaroslavl' inhabitants. And what is gratifying is that the problems of natural protection began to be resolved in a broad complex by all interested departments, organizations and institutions employing mass public relations material.

The oblast's local councils organized control over the construction and modernization of industrial enterprises and their planning. The primary requirement of the local councils is to provide a project with sewage treatment plants that conform to today's standards in the field of environmental protection. For failure to comply with these conditions postponements in activating start-up operations were noted at complexes of the Danilovskiy leading butter and cheese plant (funds had not been allocated for sewage treatment plants); the Rybinskiy engine-building plant (construction of sewage treatment plants on the industrial shower sewage drain system had not begun); the Rybinskiy copying machine plant (its share of funds for construction of a water supply and sewage system in the city had not been allocated); and others.

During 1971-76 based on the adopted decrees the activation and construction of a number of industrial enterprises were halted in conjunction with delays in funding for natural conservation measures. Temporarily shut down were the Tutayevskiy flax combine, the Burmakinskiy metal articles plant, and tanneries in Yaroslavl'. Construction was suspended at the Uglichskiy industrial experimental meat combine and at the Danilovskiy wood-working machine plant.

As a result of the measures taken municipal sewage treatment plants in Tutayev and Pereslavl' began operations two years ahead of time.

Of course managers of several enterprises did not agree with all of our decisions. Their complaints were sent even to the RSFSR Council of Ministers (in particular they were from the Porechskiy cannery, the Tannery imeni Roza Lyuksemburg, the Tul'ma flax combine, and the Volzhskaya wool-spinning factory). But in all instances the decisions of the local organs were supported and remained in force.

We did not do without severe measures in regards to various economic managers. The oblast committee of people's control rendered financial deficits to the chief of construction administration no. 3, the chief of administration for mechanized work, and the chief engineer of trust no. 16 for an unsatisfactory rate of progress on work on sewage treatment plants in Rybinsk. Administrative fines were levied against the director of the polymer machine building plant for failure to adopt measures to guarantee technical documentation for building the enterprise's sewage treatment plants and against the director of the Plant imeni Mendeleyev for shortcomings in financing and equipment for construction of sewage treatment plants.

Much useful work is being conducted by the standing commission of the oblast council for the protection of nature. At their sessions the commission examines questions having important organization significance in the matter of protecting the air, soil and water from contamination and this helps the oblast's sanitary service realize their demands on departmental enterprises and organizations.

The commission regularly conducts external meetings directly at the enterprises and is briefed by managerial reports on the status of environmental protection. The decisions approved at these external meetings of the commission, as a rule, are distinguished by being business-like and specific.

With the aim of training future national economic specialists proficient in natural protection work the commission discussed this problem at the Yaroslavskiy university, the pedagogical and polytechnical institutes, the medical institution, and at chemico-mechanical and construction technikums. As a result of this business-like approach in fulfilling the commission's recommendations at higher and intermediary institutes of learning in Yaroslavl' the cycle of lectures has been expanded and training students in environmental protection problems has improved.

At joint sessions of the standing commissions of the oblast council for the protection of nature and for housing, public utilities and public services questions were heard on adherence to the RSFSR water code in Uglich and Rybinsk, as well as on the condition of protecting atmospheric air in Yaroslavl'. One of the sessions was devoted to checking on progress in carrying out the decree of the 4th session of the USSR Supreme Soviet "On Measures for Further Improvements in the Protection of Nature and the Efficient Utilization of Natural Resources" by the Yaroslavskiy petroleum refinery.

The managers from the Verkhne-Volzskiy Basin (territorial) Administration Inspectorate, from a number of industrial enterprises, organizations, and the society for the protection of nature participated at the session. Important measures were noted on enlisting wide masses of the public and labor collectives in the struggle for conserving nature. After the session concluded the oblast's enterprises formed 150 social and technical committees for the protection of nature which are now operational.

Sanitary and hygienic plant laboratories function at major industrial enterprises realizing everyday control over exhausts of harmful gases into the atmosphere and over the degree of water purification. The results of their analysis are reported to management.

Departments for the protection of nature have been set up at several enterprises. For example, at the Yaroslavnefteorgsintez Production Association there are five engineers in such a department. It is headed by the association's deputy chief engineer for the protection of nature. Subordinate to the department is a sanitary laboratory which keeps track of the condition of sewage water according to stages of purification and monitors the make-up of water in the circulating water supply systems (for engineering purposes). It systematically studies the air over the inhabited zone. The department for the protection of nature coordinates the activities of the social-technical councils headed by enterprise shop managers.

Such coordination and interaction raises the responsibility of all managers at all components for strict adherence to technology, economy of resources, good working order of equipment, etc. It is not by chance that among the workers and engineers here that an entire detachment of "natural protection" efficiency experts has been put together. Their proposals on collection of petroleum products from the drainage of reservoirs in order to retrieve several types of finished products and return them for reprocessing were introduced at the association; magnetic treatment of water at hydrounits was also employed.

Carrying out the proposals of the efficiency experts has allowed for a decrease of three times of water consumed and almost by two times reduced the amount of irreversible losses of petroleum products. The association's collective is examining what has been achieved as a beginning of major work in the field of improved technical and economic indicators for enterprises and of intensified environmental protection. Incidentally, the work practices of this association were shown in the protection of nature exhibits at the Exhibition of Achievements of the National Economy of the USSR.

The university of technical and economic knowledge is part of the association and a major part of its programs is devoted to environmental protection themes.

The organs of the state sanitary inspectorate have raised their demands on the enterprises and officials. Violations for failure to comply with requirements to protect water resources resulted in 24 fines in 1971, but in 1975 were 46; for failure to protect the soil the number of fines rose during that period from 95 to 126, and for failure to protect the water supply from 25 to 40.

Architectural technical councils attached to executive committees have been formed and are staffed by the chief state sanitary physicians from the oblast, cities and rayons.



These councils resolve problems of allocation of land parcels and examine plans from construction of industrial projects, buildings and structures. And all this is done taking into strict account the guarantee of drinking water to the people, the condition of the air, water resources and other indicators which characterize normal living conditions. The oblast executive committee approves decisions on matters associated with land allocation only with positive findings from the sanitary organs.

In rural areas as part of the executive committees of settlement and rural councils of people's deputies 144 public sanitary inspectorates have been set up and are in operation. About 10,000 people are occupied in this work and have been specially trained at sanitary epidemiological stations and at organizations of the Red Cross society.

With the aim of making the air healthier, for the period 1971-76 309 dust and gas trapping facilities were built, 265 boiler plants and technological units were converted to gas and 104 smaller boiler plants were eliminated. Around 187 industrial enterprises sanitary protective zones were established.

Recently in 1976 the oblast council and the oblast council of trade unions made known their two-year study of the status of protection of atmospheric air. Their findings are being correlated. But already it is now possible to say that while the examination was under way construction began on new and modernization took place on existing dust and gas trapping devices at 34 of the oblast's major enterprises.

The conducting of sanitary and healthful measures tied to environmental protection led to a sharp decline in infections and occupational diseases among the oblast's workers.

The RSFSR Ministry of Health studied the joint work experiences of the deputies, the sanitary epidemiological service and plant administration, the factories of the Yaroslavskaia Oblast and gave them high marks.

The struggle for environmental protection and consequently, human health continues in our oblast. It is important that Article 147 of the USSR Constitution provided our local councils of people's deputies the authority to control the natural protection activities of enterprises, institutions and organizations of higher subordination which are situated in our territory. This simplifies our work.

Before us are crucial tasks. The people of Yaroslavl' are fully resolved to carry them out with honor. We live on the beautiful planet Earth and our duty, the duty of the Soviet people, is to make it more and more beautiful year after year.

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KRASNODARSKIY KRAY EXPERIENCES SLIGHT EARTHQUAKE 3 SEPTEMBER

Moscow IZVESTIYA in Russian 5 Sep 78 morning edition p 3 LD

[Article by S. Afonin: "Earthquake in the Kuban"]

[Text] An earthquake was recorded in Krasnodarskiy Kray on 3 September at 0321 hours 16 seconds Moscow time. Its epicenter was on the Black Sea coast, 30 km below ground, near the resort settlements of Dzhugba and Arkhipo-osipovka.

On the morning of 4 September an IZVESTIYA correspondent called Dzhugba by telephone.

"There is no destruction in the settlement or its environs," A. Krivosheyev, chairman of the Dzhugba settlement Soviet Ispolkom, said, "True, crockery rattled in some houses. The majority of inhabitants of the settlement and vacationers did not feel the underground tremors at all."

We asked Doctor of Physico-mathematical Sciences N. V. Shebolin, chief of the USSR Academy of Sciences Geophysics Institute strong earthquakes laboratory, to comment on the causes of the earthquake in Krasnodarskiy Kray.

"The depths of the earth in the West Caucasus," the scientist said, "frequently cause us surprises. Tectonically this is a very complex zone. History knows of several somewhat unusual earthquakes in the lower reaches of the Kuban, the Kerch-Taman region, and the west of the Caucasian Black Sea coast. There have been such earthquakes in 1830, 1905, 1926, and finally in 1966. The epicenters of earthquakes in this zone are characterized by the fact that they occur at a deep level. Their depth is usually over 30 km. Here the earthquakes are felt over a considerable territory. As a rule weaker tremors are observed after the first strong vibrations.

"The 3 September earthquake was felt over a large territory in the lower reaches of the Kuban and on the Black Sea coast and, as is well known, did not cause any serious damage.

"Several seismological stations are operating in the West Caucasus and are recording secondary tremors and observing the further development of the seismic process. At present there are no grounds for supposing that strong tremors will occur in this region."

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NORWAY

PROVINCE FORESTRY OFFICE URGES FELLING OF TREES HIT BY BEETLE

Oslo AFTENPOSTEN in Norwegian 6 Sep 78 Evening Ed p 1, 12

[Text] Skien, 6 Sep--All spruce trees on Telemark Island must be felled as quickly as possible. That is the sad conclusion to which the provincial head forester on Telemark and other forestry experts came after an inspection. It is the dry summers of previous years and the spruce bark beetle which have destroyed all the spruce forests on that pretty summer island. Not a single spruce tree has escaped the attack, says township head forester Harald Vibeto of Sannidal at Varden.

During the inspection, they found that the spruce trees are doomed to die. A communication regarding this matter has been sent to the Telemark welfare league. The township head forester asked the welfare society to check with the property owners as to whether it is possible to get a stop put to the grazing of young deer in the fields where plants grow. The township's head forester says the evergreen plants cannot continue to grow unless that is done. Logging is already going on, and the healthiest spruces are being felled first. Then the property owners can hope to get some of them sold which still seem to be of full value, at any rate.

By the time Midsummer Day arrived, all dry spruces on Telemark had been felled. Today, a couple of three months later, damaged trees are standing all over the island. Even forestry experts traced the rapid results of the spruce bark beetle's activities with consternation. The spruce forest on Telemark is approximately 100 years old, and people must wait a couple of generations for the forest to become fully grown again.

During the last 2 or 3 years, between 1,500 and 2,000 cubic meters of timber have been felled on Telemark and a corresponding amount remains. It is easy to employ hindsight, the township's head forester says, but at present it can be confirmed that great amounts of the spruce forest in Jomfruland could be sold as finished lumber at full price since cutting of the most healthy trees was begun earlier. Now those that can be saved must be saved. Hopefully much of the work will be done before late fall, when the strong winds begin.

The deciduous forests have survived relatively well, just as have the firs. The experts believe that it will be advantageous to depend on mixed forests when the planting continues in Jomfruland. First deciduous trees must be planted to protect the evergreens, which will be planted afterward. And it is during this work that the newly planted fields must be protected from animals.

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SWEDEN

## SPRUCE BARK BEETLE DESTROYING FORESTS

Stockholm DAGENS NYHETER in Swedish 5 Sep 78 p 3

[Article by Anders Ohman: "Typographus Threatens Forests--Catastrophe for Varmland"]

[Text] The spruce bark beetle (*Ips typographus*) is a beetle threatening to destroy the spruce forest in northern Varmland. Since 1969 almost a million cubic meters of spruce forest--between three and four million trees--have been destroyed by the spruce bark beetle.

"We should declare the area a disaster area, so that we immediately can harvest 700,000 cubic meters, before we lose millions in value," says one of the forest owners, forester Lajos Mitzer.

"We have a catastrophe on our hands up here. The spruce bark beetle destroys the spruce forest and it is not only the private forest owners who suffer gigantic losses. Our society loses billions of crowns in good spruce lumber which actually should be exported right away, but now is being damaged and classified as pulpwood," says Mitzer.

The spruce bark beetle attacked the forests in Varmland following the great storm in 1969 when a great number of trees were blown down. The beetle increased rapidly in the bark of the blown down trees and since 1969 has destroyed about 100,000 cubic meters of spruce forest each year. According to the Forestry Board, a cubic meter equals 3-4 trees.

In 1977 an inventory of the forests in northern Varmland was made from the air and the foresters found the damage had increased to 140,000 cubic meters of spruce forest.

The beetle, which is 4-5 mm long, is also devastating spruce forests in the counties of West Norrland, Kopparberg, Orebro and Alvsborg. Two hundred thousand cubic meters of spruce forest is presently being damaged in Sweden each year.

## Bait Lumber

The Forestry Board has fought the spruce bark beetle since 1971. Spraying has no effect on the beetles. Instead a number of trees--called bait lumber--are cut down which are intended to attract the beetles. When the spruce bark beetles have eaten into the bark this bait lumber is removed and destroyed.

This year the foresters also used pheromones--a scented substance--which is affixed to the trees to attract the beetles.

The government has given the Forestry Board 5.8 million crowns for the control of the spruce bark beetle. But owners of the forests in Varmland are impatient and when the Joint Council for Forest Owners and the Forestry Board meet on 15 September, rough going is expected.

"We do not believe that these measures are sufficiently effective. We feel that it is imperative to immediately cut down about 700,000 cubic meters of fine spruce forest before it is destroyed. We need an efficient organization, new ways of solving this problem, and we therefore feel that the government should declare the forests disaster areas," says forester Mitzer.

The Forestry Board in Karlskrona is not equally convinced that a large-scale logging operation of the spruce forest will stop the spruce bark beetle.

"A logging operation during the winter is meaningless, because the spruce bark beetle hibernates in the ground. Therefore, we would not solve the problem that way," says forester Anders Arnell from the Forestry Board in Karlstad.

The forest owners in northern Varmland have also petitioned the government for tax relief in connection with a massive logging operation of the damaged spruce forest. The Forestry Board supports their request, but so far the government has not granted them any tax relief.

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CSO: 5000

SWEDEN

# STOCKHOLM AUTHORITIES WARN OF EXHAUST LEAD IN FOODS

Stockholm DAGENS NYHETER in Swedish 25 Aug 78 p 3

[Article by Kerstin Fried: "Owners of Leased Garden Plots Alarmed--Lead in Vegetables"]

[Text] Vegetables, fruits and berries ought not to be grown closer than 25-50 meters from heavily trafficked roads. Nor should any broadleaved plants be grown along heavily travelled roads. The National Swedish Environment Protection Agency will issue one of these two recommendations this fall. Up to now there have been no regulations on this subject. Analyses made by the municipal authorities in Stockholm show that the level of lead found along heavily travelled routes border on the dangerous level.

The present limit set for this level is 3 mg/kg, but this level will be cut down by more than half.

Owners of small gardens, and those who lease garden plots, have sounded the alarm. They have made their voices heard to the Environmental Agency and the Public Health Service, and also contacted the Conservation Department.

Last spring the authorities in Stockholm launched a project for analyzing the level of lead in plants and soil along heavily travelled roads. The levels found showed them to border on the safety limit.

For example, the lead level in plants near Eriksdalslunden was 1.8 mg/kg.

The safety limit for lead in the soil is 100 mg/kg. Samples taken in the area of Eriksdalslunden far exceed this level, and cultivated land near Lilla Frescati is also near the dangerous level.

The lead emitted in vehicular exhaust since the 1950's has become firmly bound into the soil and is accumulating.

The automobiles also emit polyaromatic hydrocarbons which are carcinogenic. East German studies show high levels of these in vegetables grown along travelled areas.



The authorities in Stockholm have contacted the Department of Planning, which in turn has called on the Environment Protection Agency. This agency is now going to take action, realizing that it is high time to issue regulations. This will happen in the fall.

Carl-Ellis Bostrom states that it will have to be a balanced decision. "Either we will have to advise the growers against planting broadleaved plants along the road--such as lettuce, cabbage and spinach, which have large surfaces which absorb lead--or, we will have to rule that nothing edible can be grown closer than 25-50 meters to heavily travelled roads. These regulations will take on even greater importance when the norms for lead are lowered by more than half.

What will happen to the old farm plots and agricultural fields along the road-sides? No one knows. It is going to be a difficult question.

However, if the vegetables are well rinsed and dried, the level of lead can be reduced between 10-50 percent.

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END